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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
YOUNG, NATASHA E	
ART UNIT	**PAPER NUMBER**
1797	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/525,467	CHIBA ET AL.	
	Examiner	Art Unit	
	Natasha Young	1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 August 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6 and 10-14* is/are rejected.

7)☒ Claim(s) *7-9* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 February 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *08/25/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

The abstract of the disclosure is objected to because the abstract should be one paragraph in length. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-6, and 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeWitt et al (US 5,714,127) in view of Bergbreiter et al (Palladium-Catalyzed C-C Coupling under Thermomorphic Conditions, 2000).

Regarding claim 1, DeWitt et al teaches a chemical processing apparatus using a combination of a first solvent and a second solvent, which may be controlled by temperature (see column 2, line 64 through column 3, line 9; column 3, lines 42-51; and figure 14 which teaches the initiation of the temperature control).

DeWitt et al does not teach where the compatible state and the separated state are reversibly changeable in a manner dependent on the temperature, the apparatus including a container for mixing together a first solvent solution prepared by dissolving a starting material of a chemical process and/or a substance to be involved in a reaction of the chemical process in a first solvent and a second solvent solution prepared by dissolving the starting material of the chemical process and/or the substance to be involved in the reaction of the chemical process in a second solvent, a first temperature control measure for controlling the temperature of one partial region inside the container to a temperature where the first solvent solution and the second solvent solution are at a compatible state or a higher temperature, and a second temperature control measure for controlling the temperature of the other partial region inside the container to a temperature where the first solvent solution and the second solvent solution are at a phase-separated state or a lower temperature.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to control the temperature of the apparatus at near the top and near the bottom of the reaction tube for better detection of temperature fluctuations and differences between the compounds.

Bergbreiter et al teaches the compatible state and the separated state are reversibly changeable in a manner dependent on the temperature, the apparatus including a container for mixing together a first solvent solution prepared by dissolving a starting material of a chemical process and/or a substance to be involved in a reaction of the chemical process in a first solvent and a second solvent solution prepared by dissolving the starting material of the chemical process and/or the substance to be involved in the reaction of the chemical process in a second solvent (see page 2, 1st column, 2nd paragraph), where teaches that many binary and ternary solvent system exhibit a reversible increase in miscibility with increasing temperature and in some systems an originally biphasic mixture becomes miscible and monophasic with mild heating.

It would have been obvious to modify the teaching of DeWitt et al with the teachings of Bergbreiter et al to avoid time-consuming solvent purification (see Bergbreiter et al Abstract).

Claims 2-3 depend on claim 1 such that the reasoning used to reject claim 1 will be sued to reject the dependent portions of the claims.

Regarding claim 2, DeWitt et al teaches the use of a catalyst (see column 3, lines 38-43).

Regarding claim 3, DeWitt et al teaches a measure for giving energy to give energy to promote the reaction of the chemical process is arranged in one partial region under temperature control with the first temperature control measure (see column 2, lines 17-19), which mentions magnetic stirring which would be accomplished inside the reaction tube. Although DeWitt teaches that the stirring is done for agitation and not heating, the stirring does create some heating and it may be enough to cause the biphasic mixture to become monophasic (see Bergbreiter et al page 2, 1st column, 2nd paragraph).

Claim 4 depends on claim 3 such that the reasoning use to reject claim 3 will be used to reject the dependent portions of the claims.

Regarding claim 4, De Witt teaches the energy given with the measure for giving energy includes at least one of photoenergy, electrical energy, sound energy, mechanical vibration energy, electromagnetic energy and radiation energy, except thermal energy to be given for temperature control (see column 2, lines 17-19). Although DeWitt teaches that the stirring is done for agitation and not heating, the stirring does create some heating and it may be enough to cause the biphasic mixture to become monophasic (see Bergbreiter et al page 2, 1st column, 2nd paragraph).

Claims 5-6 and 10-12 depend on claim 1 such that the reasoning used to reject claim 1 will be sued to reject the dependent portions of the claims.

Regarding claim 5, DeWitt et al does not teach one partial region under temperature control with the first temperature control measure is positioned upward the

other partial region under temperature control with the second temperature control measure.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to control the temperature of the apparatus at near the top and near the bottom of the reaction tube for better detection of temperature fluctuations and differences between the compounds.

Regarding claim 6, DeWitt et al does not teach one partial region or the other partial region is in the vicinity of the inner wall of the container while the inner wall of the container or the outer wall of the container is temperature-controlled with the first or second temperature control measure.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to control the temperature of the apparatus at near the top and near the bottom of the reaction tube for better detection of temperature fluctuations and differences between the compounds.

Regarding claim 10, DeWitt et al teaches the chemical processing apparatus contains a flow measure of solvent solutions, which works for first and second solvent solutions to flow from one partial region to the other partial region and/or for the first and second solvent solutions to flow from the other partial region to one partial region (see column 18, lines 55-64) since the dispensing of the liquids are programmable.

Regarding claim 11, DeWitt et al does not teach the substance to be involved in the reaction of the chemical process is a catalyst soluble in either one of the first solvent and the second solvent but hardly soluble in the remaining one of the first solvent and

the second solvent and the reaction of the chemical process is a synthetic reaction of a compound, utilizing the catalyst.

Bergbreiter et al teaches the substance to be involved in the reaction of the chemical process is a catalyst soluble in either one of the first solvent and the second solvent but hardly soluble in the remaining one of the first solvent and the second solvent and the reaction of the chemical process is a synthetic reaction of a compound, utilizing the catalyst (see Abstract).

It would have been obvious to modify the teaching of DeWitt et al with the teachings of Bergbreiter et al to avoid time-consuming solvent purification (see Bergbreiter et al Abstract).

Regarding claim 12, DeWitt et al teaches the substance to be involved in the reaction of the chemical process is a carrier compound of a peptide soluble in either one of first and second solvents and hardly soluble in the remaining one of the first and second solvents and the reaction of the process is a peptide synthesis reaction for binding sequentially amino acids onto the carrier compound (see column 1, lines 23-28; column 2, line 61 through column 3, line 9, and column 3, lines 38-51).

Claims 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeWitt et al (US 5,714,127) and Bergbreiter et al (Palladium-Catalyzed C-C Coupling under Thermomorphic Conditions, 2000) as applied to claim 4 above, and further in view of Pirrung et al (US 6,406,844 B1).

Claims 13-14 depend on claim 4 such that the reasoning used to reject claim 4 will be used to reject the dependent portions of the claims.

Regarding claim 13, DeWitt does not teach the energy to be given is photoenergy and the measure for giving photoenergy comprises a source generating light and an optically transmitting substance as a part or the whole of a container material, or an optically wave guide measure with a wave guide end in one partial region inside the container, so that the photoenergy from the source generating light is given through the optically transmitting substance or the optically wave guide measure to the one partial region.

Pirrung et al teaches the energy to be given is photoenergy and the measure for giving photoenergy comprises a source generating light and an optically transmitting substance as a part or the whole of a container material, or an optically wave guide measure with a wave guide end in one partial region inside the container, so that the photoenergy from the source generating light is given through the optically transmitting substance or the optically wave guide measure to the one partial region (see Abstract and column 8, lines 45-56). Although Pirrung et al teaches the use of these energy source to activate the selected area, the activation does create some heating and it may be enough to cause the biphasic mixture to become monophasic (see Bergbreiter et al page 2, 1st column, 2nd paragraph).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of DeWitt et al with the teachings of Pirrung et al to provide alternative energy sources, which may be more effectively for different chemical processes.

Regarding claim 14, DeWitt et al does not teach the energy to be given is electrical energy and the measure for giving electrical energy includes an electrode for electrochemical reaction, as a cathode arranged in one partial region inside the container and an outer electric source in electric connection with the electrode.

Pirrung et al teaches the use of electrical fields or electric current as activators (see column 8, lines 46-49).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a cathode in the reaction tube connected to an electric source outside the reaction tube as a means for supplying the energy to the solution.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of DeWitt et al with the teachings of Pirrung et al to provide alternative energy sources, which may be more effectively for different chemical processes.

Allowable Subject Matter

Claims 7-9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The limitation of a separator within the reaction container which is temperature controlled could not be found in the prior art.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Natasha Young whose telephone number is 571-270-3163. The examiner can normally be reached on Mon-Thurs 7:30am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter Griffin can be reached on 571-272-1447. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

NY

WALTER D. GRIFFIN
SUPERVISORY PATENT EXAMINER